

THE CARABIDAE OF  
GLACIER NATIONAL PARK, MONTANA

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Since 1947 I have spent much of each summer in Glacier National Park. During 9 summers I was seasonal Ranger Naturalist or Park Naturalist, and since 1956 I served almost every summer as Biological Collaborator for the Park, devoting much of my time to insect studies of that area.

Hopefully, annotated lists of the various insect taxa represented in the northern Rockies near the Canadian border will be of interest to other biologists, especially entomologists and ecologists, and a series of articles of this sort is therefore anticipated.

Ground beetles are abundant throughout the park, from the 3,000 foot level near Park Headquarters to the high alpine meadows at 6,000 to 7,500 feet. They occur still higher in favorable habitats on the dozens of peaks that exceed 9,000 feet, and even above 10,000 feet on the 6 highest mountains in the Park. While preparing the manuscript for the *Climbers Guide to Glacier National Park*, I made ascents of more than 80 major summits, each of which provided opportunities to collect beetles in unique habitats. Some of those summits were visited repeatedly, often 2 or 3 times during a single season. As a result, some seasonal and annual variation was indicated by the collections made.

## ACKNOWLEDGMENTS

Dr. Terry L. Erwin, now of the U. S. National Museum, was primarily responsible for completion of this manuscript, because of his expertise and enthusiasm, and his willingness to identify hundreds of these beetles for me. I am also indebted to Dr. Melville H. Hatch, Gordon Stace-Smith, and David H. Kavanaugh for identifying specimens, and to Alice and Janie Edwards (my wife and daughter) for accompanying me on hundreds of collecting trips and mountain-climbing expeditions during those wonderful years in Glacier National Park.

## GENERAL DISCUSSION

Because this great mountainous park contains 1.5 million acres, with a remarkably diverse range of habitats, one can hardly sample the insect fauna without hiking several hundred miles of the extensive trail system. The tremendous diversity in precipitation, temperature, and humidity (especially distinct when comparing the areas east of the Continental Divide with those to the west of the Divide) results in floral differences of great magnitude. Even the forests on the 2 sides of the crest are composed of entirely different trees, despite the fact that they are only a dozen miles apart. These ecological differences, and many others, have been discussed in greater detail elsewhere (Edwards, 1957).

The major lowland areas, where collecting has been done, are near highways and visitor facilities. They are: Lake McDonald (3100 ft., in Western red cedar forests with dense, damp ground-cover); St. Mary Valley (4500 ft., forested with lodgepole pine, Engelmann spruce, and alpine fir); and Swiftcurrent Valley, or the Many Glacier Area (4800 ft., with forests similar to the St. Mary Valley). St. Mary and Swiftcurrent are both east of the Divide, while McDonald Valley lies to the west. Waterton Lake is shared by the U. S. and Canada in the joint park known as "Waterton-Glacier International Peace Park." The fauna and flora there resemble the other valleys east of the Divide, but the peaks appear to be considerably drier and a little lower (4180 ft. elevation). At the highest point of Going-to-the-Sun Highway, on Logan Pass (6,650 ft.), several square miles of alpine meadows extend toward the west and southwest. This is the only place in the park where alpine habitats can be approached by road. Other high habitats frequented by people are the 2 mountain chalets which are accessible only by trail. Sperry Chalet is 6.5 miles uphill from Lk. McDonald, and Granite Park Chalet is 7 miles north of Logan Pass at about the same elevation. Sperry is surrounded by alpine fir trees, in a narrow cirque. Granite Park perches on a barren bench with unlimited views to the north, west, and south, and is surrounded by alpine meadows and scattered alpine fir and whitebark pine trees. Tree-line generally lies at 6500 to 7000 feet, and alpine meadows extend to 8000 feet or above, in areas where there is sufficient soil to support plant growth. At higher elevations there are numerous horizontal ledges and shelves which

accumulate soil deposits, and frequently grasses, herbs, and mosses thrive there, especially on south- and west-facing exposures.

Carabid habitats include all of the Life Zones and all sorts of areas from the lowest to the highest elevations in the Park. Most productive habitats have been near water; along streams, beside lakes, on and near melting snowbanks, and in marshy or swampy regions everywhere. Much collecting was done after dark using head lamps, because the beetles are actively searching for food at that time. Even on the surface of the large glaciers one finds numerous ground beetles roaming over the ice all night long, exposed to temperatures well below freezing as they seek arthropod victims that have been immobilized by the cold.

In the following pages annotated records are presented for nearly 800 specimens of ground beetles from the National Park, representing 109 species. Undoubtedly many others occur there, for these specimens were collected mostly from east of the Continental Divide and mostly from the riparian habitats. Forest-inhabiting species and species of the dense Canadian Life Zone forests west of the Divide should be added to the list in the future.

## ANNOTATED LIST OF CARABIDAE COLLECTED IN GLACIER NATIONAL PARK, MONTANA

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS (FT)</u>
<u>Trachypachus holmbergi</u> Mannerheim		
25-VI-62 (1) #6599	Near Lk. McDonald Hotel, under damp rag	3145
12-VII-53 (1) 5330	Iceberg Lk., north shore, under rock	6050
16-VII-55 (1) 5691	Numa Ridge Fire Lookout, under gravel	6800
<u>Trachypachus gibbsi</u> Leconte		
10-VII-55 (1) 5511	Lake McDonald, east shore, under rock	3145
<u>Gehringia olympica</u> Darlington		
8-VII-61 (4) 6443	Swiftcurrent Cr., south shore, near Lake	4865
9-VII-65 (1) 7020	Swiftcurrent Creek, south shore	4880
16-VII-72 (14)	Appekunny Cr., near highway bridge	4750
28-VII-65 (4) 7031	Atlantic Cr. 3 mi west of Cutbank R.S.	5300
3-VIII-59 (8) 5931	Swiftcurrent Cr., near foot bridge	4865
<u>Omophron ovale</u> Horn		
21-VII-53 (2) 5347	Jct of McDonald Cr. with Flathead River	3100
<u>Carabus taedatus agassii</u> Leconte		
26-VI-55 (6) 5672	Logan Pass, under rocks on bare ridge	6700
1-VII-61 (2) 6415	Snow Moon Lake, under large boulders (Northeast cirque of Mt. Allen)	6550
27-VII-54 (5) 5538	Piegan Pass, under deeply embedded boulders in meadow	7900
22-VIII-68 (1) 8294	Swiftcurrent Camp Resthouse, at lights	4880
23-VIII-68 (1) 8295	Low on south slope of Mt. Altyn, under log on grassy hillside in old burn	5600
<u>Scaphinotus marginatus</u> Fischer		
19-VII-68 (1) 8226	Fifty Mountain Camp, by creek at night	6600
23-VII-68 (1) 8297	Swiftcurrent Camp Resthouse, at lights	4880
<u>Nebria arkansana</u> Casey		
20-VII-52 (1) 4038	Morning Eagle Falls, under rock	5500
3-VIII-53 (2) 5364	Grinnell Glacier, by drainage stream (under rock, mating)	6150
4-VIII-54 (2) 5544	Grinnell Glacier, by drainage stream	6150
15-VIII-52 (7) 4072	Grinnell Glacier, by drainage stream	6150
15-VIII-53 (15) 5387	By stream above Grinnell Falls	6100
19-VIII-66 (1) 8065	Beside creek west of Piegan Pass	7900
31-VIII-52 (7) 4085	Grinnell Lake shore, by inlet stream	5050

<u>NAMES AND DATES</u>		<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Nebria gebleri</u> Dejean (Dr. T. L. Erwin says <u>N. meanyi</u> not in Rockies)			
27-VI-50	(1)	3094 Going-to-the-Sun Point, under dead bark of old stump near St. Mary Lake shore	4500
30-VI-60	(1)	6147 Lake McDonald inlet of Snyder Creek	3155
7-VII-56	(1)	5826 Big stream northwest of Two Medicine Lake uphill toward Dawson Pass, by trail	5850
14-VII-62	(1)	6600 Swiftcurrent Cr. shore, near Ranger Stn.	4870
16-VII-63	(2)	6786 Swiftcurrent Cr. shore, near Ranger Stn.	4870
17-VII-51	(1)	3675 Swiftcurrent Camp, under dead log	4900
17-VII-53	(1)	5337 Grinnell Cr., below Grinnell Lake (gravel)	5000
19-VII-63	(1)	6788 Swiftcurrent Cr. shire, near Ranger Stn.	4870
20-VII-52	(2)	4038 Below Morning Eagle Falls, under rocks	5500
25-VII-65	(2)	7022 By Wilbur Cr., near Swiftcurrent Cr.	4950
28-VII-53	(3)	5361 Grinnell Glacier, by drainage stream	6150
30-VII-66	(1)	8035 Sperry Chalets, under rock in meadow	6600
1-VIII-53	(2)	5381 Grinnell Glacier, by drainage stream	6150
3-VIII-54	(3)	5544 Creek east of Weeping Wall, near road	5800
4-VIII-66	(2)	8044 Nameless Peak southwest of Mt. Reynolds	8600
6-VIII-66	(2)	8050 Just east of Swiftcurrent Pass, by Creek	7100
7-VIII-55	(1)	5715 Hidden Pass, under rock by creek	7100
10-VIII-53	(2)	5387 By Camas Creek, near North Fork Road	3779
15-VIII-52	(4)	4072 Grinnell Glacier, by drainage stream	6150
15-VIII-53	(1)	5387 Grinnell Cr., near Swiftcurrent Lake	4870
15-VIII-53	(1)	5387a By creek above Grinnell Falls	6100
28-VIII-54	(1)	5584 Active on ice of Grinnell Glacier, on cold night at 3:30 A.M.	6300
<u>Nebria gyllenhali</u> Schönherr (Dr. Erwin says <u>N. nivalis</u> much further N.)			
8-VII-61	(1)	6440 Swiftcurrent Cr. shore, near Swiftcurrent Lake inlet	4865
27-VII-54	(3)	5538 Piegan Pass meadows, under large rocks	7900
14-VIII-54	(1)	5552 Swiftcurrent Cr. shore, at night	4870
17-VIII-66	(3)	8064 Active on snowbank west of Mt. Reynolds	7500
28-VIII-54	(1)	5584 Active under rocks at edge of Grinnell Glacier, 3:30 A.M. (45° F air temperature)	6300
<u>Nebria hudsonica</u> Leconte			
12-VIII-66	(2)	8057 Mudflats at junction of McDonald Cr. with Middle Fork of Flathead River	3100
<u>Nebria intermedia</u> Van Dyke (Dr. Erwin says specimens identified as <u>N. crassicornis</u> are most likely <u>intermedia</u> )			
26-VI-55	(8)	5672 Logan Pass, on bare ridge near chalet	6700
28-VI-62	(2)	6601 Shangri-La Lk., north of Mt. Wilbur	6700
31-VI-47	(2)	2196 Logan Pass, active on snowfields	6800
2-VII-56	(2)	5821 Logan Pass, active on snow a half mile from nearest rock or soil	6900
4-VII-51	(2)	3633 Logan Pass, running rapidly on snowfield	6850
5-VII-56	(2)	5825 Swiftcurrent Lk. shore, active at 2 A.M.	4870
9-VII-50	(2)	3154 Logan Pass, active on snowfields	6800
13-VII-47	(2)	2233 Iceberg Lk., under rock on snowfield	6050
13-VII-55	(3)	5688 Sperry Chalets, under snow-covered logs	6600
16-VII-68	(4)	8219 Granite Park Chalets, in meadows (teneral)	6600
17-VII-55	(3)	5693 Logan Pass, bare ridge surrounded by snow	6700
18-VII-55	(2)	5695 Logan Pass, active on snowfields	6900
19-VII-54	(2)	5524 Outlet of Hidden Lake, under rocks	6375
19-VII-63	(2)	6790 Outlet of Snow Moon Lk. (Northeast cirque of Allen Mtn)	6550
21-VII-51	(1)	3690 Logan Pass, active on snowfields	6800
25-VII-52	(2)	4044 Grinnell Lk., under rocks by shore	5050
27-VII-54	(2)	5538 Piegan Pass, under rocks in meadows	7930
29-VII-56	(2)	5867 Boulder Pass, on snowfields, active	7900
31-VII-53	(2)	Levi Gunsight Pass, under rocks (H.W. Levi)	6700
5-VIII-64	(1)	6978 Chaney Glacier, on snowfield	7500
8-VIII-53	(5)	Levi Hidden Pass, on snowfields (H.W. Levi, Coll)	7100
10-VIII-47	(2)	2313 Grinnell Glacier, at edge of the ice-cave	6300
<u>Nebria obtusa</u> Leconte			
23-VII-67	(2)	8159 St. Mary entrance, at lights	4500

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Nebria sahlbergi</u> Fisher	(Erwin doubtful about this identification, but says "it seems to be this species")	
1-VIII-53 (8) 5381a	Grinnell Glacier, outlet drainage stream (May be <u>N. arkansana</u> instead of this sp.)	6180
<u>Opisthius richardsoni</u> Kirby		
14-VII-55 (4) 5690	Bowman Cr., by bridge north of Polebridge	3550
16-VII-55 (2) 5692	Flathead River shore, mud-bank, Polebridge	3540
12-VIII-66 (7) 8057	Mudflats at junction of McDonald Cr. with Middle Fork of Flathead River	3100
31-VIII-53 (7) 5404	Mudflats at junction of McDonald Cr. with Middle Fork of Flathead River	3100
<u>Notiophilus directus</u> Casey		
29-VI-55 (1) 5673	Lk. McDonald, east shore, under board	3150
16-VII-55 (1) 5691	Numa Ridge Fire Lookout, under gravel	6700
24-VII-54 (1) 5524	Swiftcurrent Pass, near highest point	7000
8-VIII-68 (1) 8250	By Wilbur Cr., above Swiftcurrent Falls	5050
19-VIII-66 (1) 8065	Beside tiny creek west of Piegan Pass	7900
<u>Notiophilus simulator</u> Fall		
21-VII-51 (1) 3692	On snowfield at Swiftcurrent Pass	7100
<u>Elaphrus californicus</u> Mannerheim		
18-VIII-51 (1) 3692	Mudflat at jct of McDonald Cr. & Flathead River, Middle Fork	3100
<u>Elaphrus lecontei</u> Crotch		
3-VIII-68 (1) 8240	Muddy shore, small pond east of Chief Mtn.	5550
<u>Elaphrus riparius</u> Linnaeus		
8-VII-53 (1) 5329	Belly River shore, near Mountain View, Alta. (A few miles east of park boundary, but near)	
<u>Nomius pygmaeus</u> Dejean		
5-VII-55 (1) 5150	Floor of auditorium, Lk. McDonald Hotel	3150
<u>Psydrus piceus</u> Leconte		
25-VI-55 (2) 5668	Under loose moist bark, larch log, east shore of Lk. McDonald	3145
25-VI-62 (2) 6599	In duff on ground, east shore, Lk. McDonald	3150
<u>Patrobus longicornis</u> Say		
30-VIII-54 (1) 5543	Under gravel by Swiftcurrent Cr.	4870
<u>Diplous aterrimus</u> Dejean		
27-VI-68 (2) 8237	Under log, Swiftcurrent Camp	4880
2-VII-62 (1) 6604	Wilbur Cr., near Swiftcurrent Camp	4900
8-VII-53 (3) 5329	Belly River east of Waterton, Alberta (North of Glacier N. P., but near)	
8-VII-61 (1) 6440	By Swiftcurrent Cr., near Swiftcurrent Camp	4875
9-VII-61 (1) 6443	By Wilbur Cr., near Swiftcurrent Camp	4900
14-VII-55 (2) 5690	By Bowman Cr., under bridge north of Pole- bridge Ranger Station	3550
16-VII-63 (3) 6786	Beside Swiftcurrent Creek, under rocks	4870
17-VII-53 (3) 5337	By Grinnell Cr., at Josephine Lk. inlet	5000
21-VII-66 (3) 8022	Crypt Lk., Waterton National Park, Alta.	6500
29-VII-65 (2) 7033	Beside Swiftcurrent Cr., near Ranger Stn.	4870
1-VIII-53 (1) 5381	By creek draining Grinnell Glacier	6250
4-VIII-54 (1) 5544	By Grinnell Glacier drainage creek	6150
12-VIII-66 (1) 8057	By Flathead River, West Glacier Montana	3100
15-VIII-52 (1) 4072	By Grinnell Cr., near Grinnell Glacier	6250
15-VIII-53 (3) 5387	By Grinnell Cr., above Grinnell Falls	6100
30-VIII-50 (2) Hatch	By Divide Cr., St. Mary Montana (M.H.Hatch)	4480
<u>Platiolus vandykei</u> Kurnakow (= <u>Patroboidea rufa</u> Van Dyke)		
29-VII-65 (1) 8165	Swiftcurrent Campground, under log	4900

<u>NAMES AND DATES</u>		<u>LOCALITIES AND HABITATS</u>		<u>ELEVATIONS</u>
<u>Trechus chalybeus</u> Dejean				
15-VII-53	(1)	Levi	On shore of Iceberg Lk. (Coll. H.W. Levi)	6050
19-VII-63	(1)	6790	Falling Leaf Lk., Northeast of Allen Mtn.	6700
30-VII-66	(4)	8036	Swiftcurrent Campground, under rocks	4900
4-VIII-68	(1)	8244	By Swiftcurrent Cr., below Sherburne Dam	4760
29-VIII-53	(1)	5396	Shore of Josephine Lake	4900
<u>Trechus tenuiscapus</u> Lindroth				
27-VII-55	(1)	5711	Near Sperry Chalets, under large rock	6500
<u>Bembidion bifossulatum</u> Leconte				
19-VII-63	(1)	6790	Outlet of Snow Moon Lk., northeast cirque of Allen Mtn.	6550
27-VIII-52	(6)	4081	Mud shore of small pond east of Chief Mtn.	5550
29-VIII-53	(3)	5396	By Grinnell Cr. near Josephine Lk. inlet	4950
<u>Bembidion bimaculatum</u> Kirby				
14-VII-62	(1)	6600	Beside Swiftcurrent Creek	4870
31-VIII-53	(1)	5404	Mudflat at jct of McDonald Cr. with Middle Fork of Flathead River	3100
<u>Bembidion californicum</u> Hayward				
19-VII-67	(1)	8154	By Swiftcurrent Cr. near Swiftcurrent R. S.	4870
23-VII-67	(1)	8159	St. Mary Entrance Station, at lights	4500
3-VIII-66	(1)	8041	Old Flathead River Bridge, West Glacier	3100
14-VIII-54	(1)	5552	By Swiftcurrent Cr., near Ranger Station	4870
<u>Bembidion castor</u> Lindroth				
23-VII-67	(1)	8159	St. Mary Entrance Station, at lights	4500
24-VII-50	(1)	3194	Mudflat at jct of McDonald Cr. with Middle Fork of Flathead River	3100
<u>Bembidion coloradense</u> Hayward				
12-VII-53	(1)	5332	Eating ladybug, under rock on Salamander Glacier (above Grinnell Glacier)	7100
27-VIII-52	(1)	4081	Mud shore of small pond east of Chief Mtn.	5550
<u>Bembidion commotum</u> Casey				
26-VI-55	(2)	5672	Logan Pass, on rocky bare ridge surrounded by snowfields	6670
10-VII-62	(1)	6627	Summit, Mt. Gould, by summit showbank	9541
19-VII-67	(1)	8154	By Swiftcurrent Cr., near Ranger Station	4870
21-VII-51	(2)	3690	Logan Pass, beside snow-bank	6800
21-VII-67	(1)	8155	Swiftcurrent Camp, at light	4900
<u>Bembidion complanulum</u> Mannerheim				
8-VII-65	(4)	7017	South slope, Mt. Henkel, by snowbank	6800
8-VII-65	(3)	7018	Summit of Mt. Altyn, by snowbank	7900
20-VII-65	(1)	7021	Summit of Mt. Clements, under rock	8764
21-VII-66	(2)	8022	Crypt Lk., Waterton National Park, Alta	6500
24-VII-66	(4)	8024	Mt. Henkel, south slope, by drainage creek	7500
28-VII-65	(1)	7031	Atlantic Cr., 3 miles west of Cutbank R.S.	5300
29-VII-65	(8)	7034	High on Bearhat Mtn., east face, near rill	7500
1-VIII-65	(1)	7037	Summit of Mt. Wilbur, under rock	9293
4-VIII-54	(2)	5544	Grinnell Glacier drainage stream	6150
6-VIII-66	(1)	8050	Swiftcurrent Pass, beside stream	7100
17-VIII-66	(1)	8062	On ridge-top southwest of Mt. Reynolds	8600
17-VIII-66	(1)	8064	By large snowbank west of Mt. Reynolds	7800
19-VIII-66	(1)	8065	By stream west of Piegan Pass meadows	7900
<u>Bembidion dyschirinum</u> Leconte				
28-VI-52	(1)	3977	South slope of Mt. Altyn, in tall grass beside tiny stream	5100
3-VII-64	(1)	6932	By old bridge, Flathead River (West Glacier)	3200
<u>Bembidion erasum</u> Leconte				
27-VII-66	(1)	8032	South slope of Mt. Altyn, by small stream	6000
3-VIII-66	(1)	8041	By old bridge, Flathead River (West Glacier)	3200

<u>NAMES AND DATES</u>		<u>LOCALITIES AND HABITATS</u>		<u>ELEVATIONS</u>
<u>Bembidion flebile</u> Casey				
26-VI-55	(3)	5671	Active on snowfields, Logan Pass	6800
1-VII-61	(4)	6415	Snow Moon Lk. northeast of Allen Mtn	6550
8-VII-61	(1)	6440	Swiftcurrent Cr., near Ranger Station	4875
12-VII-64	(3)	6948	Summit of Grinnell Point, by snowbank	7400
13-VII-55	(1)	6584	On snowfield near Sperry Glacier	7750
18-VII-55	(1)	5695	Active on snow at Logan Pass	6800
19-VII-67	(1)	8154	By Swiftcurrent Cr., near Ranger Station	4875
1-VIII-53	(1)	5381	By drainage stream near Grinnell Glacier	6150
4-VIII-54	(7)	5544	By drainage stream near Grinnell Glacier	6150
31-VIII-52	(21)	4085	By Grinnell Cr., inlet of Grinnell Lake	5050
<u>Bembidion gebleri</u> Gebler				
2-VII-62	(1)	6600	By Swiftcurrent Cr., near Ranger Station	4875
8-VII-61	(2)	6440	By Swiftcurrent Cr., foraging at night	4875
9-VII-61	(7)	6443	By Swiftcurrent Cr., near Ranger Station	4875
14-VII-55	(1)	5690	By Bowman Cr. near bridge north of Pole- bridge Ranger Station	3540
21-VII-66	(3)	8022	Crypt Lk., Waterton National Park, Alta.	6500
23-VII-67	(1)	8159	St. Mary Entrance, by Divide Creek	4500
28-VII-65	(2)	7031	Atlantic Cr., 3 miles west of Cutbank R.S.	5300
1-VIII-53	(1)	5381	By drainage stream near Grinnell Glacier	6150
12-VIII-53	(1)	5387	On floating debris in eddy, Swiftcurrent Cr.	4875
15-VIII-52	(2)	4072	By drainage stream near Grinnell Glacier	6150
31-VIII-52	(1)	4085	Inlet of Grinnell Lk., by Grinnell Creek	5050
<u>Bembidion incertum</u> Motschulsky				
28-VI-62	(4)	6602	On Iceberg floating in Iceberg Lake	6050
4-VII-51	(3)	3633	Active on snowfields at Logan Pass	6850
7-VII-56	(5)	5826	By first stream up trail from Two Medicine Lake toward Dawson Pass	5850
7-VII-62	(3)	6610	Along the Garden Wall Trail near Granite Pk.	6700
8-VII-62	(1)	6614	By pond near snowbank, Granite Park Chalets	6000
10-VII-62	(1)	6627	Summit of Mt. Gould, by snowbank	9541
11-VII-55	(1)	5682	Active on snowfield, Logan Pass	6670
13-VII-51	(1)	3665	High east face of Mt. Wilbur, by trickle	8000
13-VII-55	(2)	5688	Under logs embedded beneath snow, Sperry Chalets, surrounded by snowfields	6600
22-VII-54	(1)	5524	North shore of Iceberg Lake	6050
27-VII-55	(2)	5711	By stream east of Sperry Chalets	6600
28-VII-65	(1)	7031	Atlantic Cr. 3 miles west of Cutbank R. S.	5300
30-VII-65	(1)	5544	By Swiftcurrent Cr. near Swiftcurrent R. S.	4875
30-VII-67	(1)	8165	Embedded rocks in meadow near Ptarmigan Lk.	6600
4-VIII-64	(1)	6976	By stream south of Fifty Mtn Camp	6900
6-VIII-66	(3)	8050	Under rocks on Swiftcurrent Pass, by trail	7100
12-VIII-53	(1)	5387	On floating debris in Swiftcurrent Cr. eddy	4875
27-VIII-55	(1)	5733	By Howe Creek, along North Fork Road	3500
31-VIII-52	(1)	4085	By drainage creek near Grinnell Glacier	5050
4-IX-54	(1)	5596	Under rock in meadow near Iceberg Lake	6070
<u>Bembidion incrematum</u> Leconte				
23-VII-67	(1)	8159	St. Mary Entrance, at lights	4500
<u>Bembidion interventor</u> Lindroth				
23-VII-67	(1)	8159	St. Mary Entrance, at lights	4500
24-VII-50	(1)	3194	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
<u>Bembidion iridescens</u> Leconte				
3-VIII-66	(1)	8041	By old Flathead River Bridge, West Glacier	3200
<u>Bembidion kuprianovi</u> Mannerheim				
30-VI-60	(1)	6147	Lk. McDonald shore, near Snyder Cr. inlet	3155
8-VII-61	(2)	6440	By Swiftcurrent Cr., near Ranger Station	4875
16-VII-63	(2)	6786	By Swiftcurrent Cr., near Ranger Station	4880
19-VII-55	(1)	5698	By Snyder, near shore of Lk. McDonald	3155
1-VIII-53	(2)	5381	By drainage stream near Grinnell Glacier	6150
14-VIII-54	(2)	5552	By Swiftcurrent Cr., near Ranger Station	4880
31-VIII-52	(1)	4085	By Grinnell Cr., below Grinnell Falls	5050

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Bembidion levettei</u> Casey		
24-VII-50 (4) 3192	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
12-VIII-66 (2) 8057	Ibid	3100
18-VIII-51 (1) 3732	Ibid	3100
31-VIII-53 (7) 5404	Ibid	3100
<u>Bembidion nigricornis</u> Hayward		
12-VIII-66 (1) 8057	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
<u>Bembidion nigripes</u> Kirby		
21-VI-60 (1) 5917	By small stream northeast of Iceberg Lk.	6050
18-VIII-51 (1) 3732	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
<u>Bembidion nigrocoeruleum</u> Hayward		
12-VIII-61 (1) 8057	By old Flathead River bridge, West Glacier	3200
<u>Bembidion nitidum</u> Kirby		
12-VII-53 (2) 5332	Active on ice under rocks, Salamander Gl.	7100
20-VII-53 (3) 5347	By Belly River east of Waterton, Alberta	
<u>Bembidion obscurellum</u> Motschulsky		
8-VII-53 (11) 5329	By Belly River east of Waterton, Alberta (Not in Glacier N. P., but near it)	
12-VII-53 (1) 5332	Active on Salamander Glacier, preying on ladybugs under rocks on ice, under snow	7100
19-VII-67 (2) 8154	By Swiftcurrent Cr. near Ranger Station	4880
21-VII-47 (1) 2262	Rising Sun, north shore of St. Mary Lk.	4600
28-VII-65 (4) 7022	St. Mary Entrance, at light	4500
18-VIII-51 (1) 3732	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
31-VIII-52 (1) 4085	By Grinnell Cr., at inlet to Grinnell Lk.	5050
<u>Bembidion patrulele</u> Dejean		
12-VII-53 (1) 5332	Under rock on ice of Salamander Glacier	7100
15-VIII-53 (1) 5387	By Grinnell Cr., at Josephine Lk. inlet	5000
18-VIII-51 (2) 3732	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
<u>Bembidion planatum</u> Leconte		
24-VII-50 (1) 3194	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
28-VII-65 (3) 7031	By Atlantic Cr., 3 miles west of Cutbank Ranger Station (gravel bank near water)	5300
12-VIII-66 (2) 8056	St. Mary Entrance, by Divide Creek	4480
<u>Bembidion platynoides</u> Hayward		
8-VII-61 (1) 6440	By Swiftcurrent Cr., near Ranger Station	4880
<u>Bembidion quadrifoveolatum</u> Mannerheim		
1-VII-61 (2) 6415	Snow Moon Lk., northeast cirque, Allen Mtn.	6550
7-VII-62 (1) 6610	By small stream along Garden Wall trail	6600
8-VII-62 (2) 6614	Mud edge of meltpond in meadow below Granite Park Chalets	6500
1-VIII-53 (1) 5381	By drainage stream at Grinnell Glacier	6150
<u>Bembidion quadrimaculatum</u> Linnaeus		
3-VII-64 (1) 6932	Near old Flathead River bridge, West Glacier	3200
20-VII-53 (1) 5347	By Belly River, east of Waterton, Alberta (Northeast of Glacier N. P. borders)	
21-VII-53 (1) 5347c	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
29-VIII-53 (1) 5396	By Grinnell Cr., at Josephine Lk. inlet	5000
<u>Bembidion quadrulum</u> Leconte		
20-VII-53 (1) 5347a	By Belly River, east of Waterton, Alta. (Not in Glacier N.P., but near it)	

<u>NAMES AND DATES</u>		<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Bembidion reticulolle</u> Leconte			
23-VII-67	(2) 8159	St. Mary Entrance, at lights	4500
31-VIII-52	(1) 4085	Below Grinnell Falls, by Grinnell Cr.	5050
<u>Bembidion rupicola</u> Kirby			
5-VIII-52	(1) 4063	Inside Swiftcurrent Ranger Station office	4880
<u>Bembidion rusticum</u> Casey			
14-VII-55	(1) 5690	By Bowman Cr., north of Polebridge R. S.	3530
16-VII-63	(1) 6786	By Swiftcurrent Cr., near Ranger Station	4900
23-VII-67	(2) 8159	St. Mary Entrance, at lights	4500
27-VII-65	(1) 7028	By Wilbur Cr., near Swiftcurrent Cr. jct.	4900
29-VII-65	(1) 7031	By Atlantic Cr., 3 miles west of Cut- bank Ranger Station, on gravel-bar	5300
1-VIII-53	(3) 5381	By drainage stream near Grinnell Glacier	6150
2-VIII-65	(1) 7036	By Swiftcurrent Creek, near Ranger Station	4900
12-VIII-63	(1) 5387	On floating debris in Swiftcurrent Creek, near Swiftcurrent Ranger Station	4870
12-VIII-66	(3) 8057	By Flathead River near old bridge (West Glacier, Montana)	3200
15-VIII-52	(5) 4072	By drainage stream near Grinnell Glacier	6150
31-VIII-52	(4) 4085	By Grinnell Cr., near Grinnell Lk. inlet	5050
<u>Bembidion salebratum</u> Leconte			
8-VII-62	(4) 6600	By Swiftcurrent Cr., near Ranger Station	4875
2-VIII-63	(4) 6805	By Swiftcurrent Cr., near Ranger Station	4875
14-VIII-63	(2) 5552	By Swiftcurrent Cr., near Ranger Station	4876
<u>Bembidion scopulinum</u> Kirby			
8-VII-53	(2) 5329	By Belly River, east of Waterton, Alta. (Not in the Park, but near it)	
19-VII-67	(1) 8154	By Swiftcurrent Cr., near Ranger Station	4875
2-VIII-63	(1) 6805	By Swiftcurrent Cr., near Ranger Station	4875
<u>Bembidion timidum</u> Leconte			
12-VII-53	(5) 5332	Active on ice of Salamander Glacier	7100
27-VIII-52	(5) 4081	Mud bank of small pond east of Chief Mtn.	5550
29-VIII-53	(1) 5396	By Grinnell Cr., at Josephine Lk. inlet	5000
<u>Bembidion transversale</u> Dejean			
2-VII-62	(1) 6604	By Wilbur Cr., near Swiftcurrent Camp	4900
8-VII-53	(1)	By Belly River, east of Waterton, Alta. (Not in Glacier N. P., but near it)	
9-VII-61	(1) 6443	By Swiftcurrent Cr., near Ranger Station	4875
16-VII-55	(1) 5692	By Flathead Riv., north of Polebridge R.S.	3540
22-VII-59	(1) 5918	In Swiftcurrent Campground	4900
23-VII-67	(2) 8159	Mud shore of pond below highway south of St. Mary, near viewpoint	4900
5-VIII-63	(1) 6805	By Swiftcurrent Cr., near Ranger Station	4870
15-VIII-53	(1) 5387d	By Grinnell Cr., at Grinnell Lk outlet	5050
<u>Bembidion umbratum</u> Leconte			
16-VII-55	(1) 5692	Gravel-bar, North Fork of Flathead River, north of Polebridge (with many Georyssids)	3550
21-VII-53	(1) 5347c	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
12-VIII-66	(4) 8057	Ibid	3100
18-VIII-51	(12) 3732	Ibid	3100
27-VIII-51	(1) 4081	Mud shore of pond east of Chief Mtn	5550
31-VIII-53	(13) 5404	Mudflats at jct between McDonald Cr. and Middle Fork of Flathead River	3100
<u>Pterostichus adstrictus</u> Eschscholtz			
10-VII-56	(1) 5831	Under rock beside Swiftcurrent R. S.	4900
3-VIII-66	(3) 8041	By old Flathead River bridge, West Glacier	3200
<u>Pterostichus ecarinatus</u> Hatch			
25-VI-55	(1) 5669	Under loose dead hemlock bark, east side of Lake McDonald	3150
13-VII-55	(1) 5835	Crawling in trail to Grinnell Glacier	5500
29-VII-51	(2) 3706	Under dead bark of old log at Hole-in-the- Wall Camp (south of Boulder Pass)	6800



<u>NAMES AND DATES</u>		<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Pterostichus riparius</u> Dejean			
26-VI-55	(3) 5672	Logan Pass, on bare ridge in snowfields	6700
11-VII-53	(1) 5330	Under fireplace stones, Iceberg Lk. shore	6050
25-VII-55	(1) 5709	Active on snowfields at Logan Pass	6800
26-VII-55	(1) 5710	By Snyder Cr., near Lk. McDonald shore, in dense redcedar forest	3150
27-VII-55	(3) 5711	Under rocks beside Sperry Chalets	6600
28-VII-65	(5) 7034	Near snowbank, high on east side of Bear- hat Mtn (above Hidden Lake)	7500
4-VIII-64	(1) 6974	Fifty Mountain Camp, under rock near creek	6600
<u>Pterostichus sphodrinus</u> Leconte			
1-VII-61	(1) 6418	Snow Moon Lk., northeast cirque of Allen Mt.	6550
<u>Calathus advena</u> Leconte			
31-VI-47	(1) 2196	Active on snowfields at Hidden Pass	7150
13-VII-55	(2) 5688	Under logs embedded in snowfield near Sperry Chalets	6600
25-VII-67	(1) 8162	North slope of Allen Mtn, under log	6500
22-VII-54	(1) 5524d	Under rock in snow-field, Iceberg Lk shore	6050
4-VIII-68	(1) 8244	Below Sherburne Dam, near Swiftcurrent Cr. shore, under dead log in mud	4760
<u>Calathus ingratus</u> Dejean			
24-VII-54	(1) 5524f	Swiftcurrent Pass, beneath large rock	7300
<u>Agonum bogemanni</u> Gyllenhal			
11-VII-50	(1) 3162	Active on snowfield at Logan Pass	6880
<u>Agonum corvus</u> Leconte			
12-VII-53	(1) 5332	Preying on ladybugs under rocks on the surface of Salamander Glacier	7100
<u>Agonum cupreum</u> Dejean			
12-VII-53	(1) 5332	Preying on ladybugs under rocks on the surface of Salamander Glacier	7100
21-VII-66	(1) 8022	Crypt Lk., Waterton National Park, Alta.	6500
<u>Agonum cupripenne</u> Say			
3-VIII-66	(1) 8041	By old Flathead River bridge, West Glacier	3200
<u>Agonum placidum</u> Say			
11-VII-63	(2) 6778	Frigid on snowfield, during sleet storm on Salamander Glacier	7100
15-VII-63	(1) 6786	Under damp rocks below edge of Gem Glacier	8100
<u>Amara apricaria</u> Paykull			
11-VII-63	(1) 6778	Active on snowfield during sleet storm on Salamander Glacier	7100
12-VII-53	(2) 5332	Preying on ladybugs under rocks on the ice of Salamander Glacier	7100
15-VII-63	(1) 6786	Under damp rocks below edge of Gem Glacier	8100
23-VII-51	(1) 3696	Active on snowfields of Grinnell Glacier	6500
29-VII-56	(1) 5867	Active on snowfields near Boulder Pass	7900
<u>Amara conflata</u> Leconte			
24-VII-53	(1) 5350	On snowfields near Boulder Pass, active	7900
<u>Amara confusa</u> Leconte			
18-VII-55	(1) 5695	Active on snowfields at Logan Pass	6800
5-VIII-66	(6) 8047	St. Mary Entrance, at lights	4500
<u>Amara convexa</u> Leconte			
12-VII-53	(1) 5332	Preying on ladybugs under rocks on ice of Salamander Glacier	7100
28-VII-53	(1) 5378	Active on surface of Vulture Glacier	8200
<u>Amara cupreolata</u> Putzeys			
25-VIII-55	(1) 5732	Active on snowfields of Sperry Glacier	7750

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Amara discors</u> Kirby		
26-VI-55 (2) 5672	Logan Pass, on bare ridge in snowfields	6700
30-VII-67 (1) 8165	Under rock in meadow by Ptarmigan Lake	6600
19-VIII-66 (1) 8065	By small stream west of Piegan Pass	7900
<u>Amara erratica</u> Duftschmid		
17-VII-51 (1) 3679	By small lake at Shangri-La (northeast basin of Mt. Wilbur).	6650
<u>Amara familiaris</u> Duftschmid		
21-VII-51 (1) 3692	Active on snowfield at Swiftcurrent Pass	7100
<u>Amara farcta</u> Leconte		
26-VI-60 (1) 6136	In flight, Swiftcurrent Campground	4900
3-VII-51 (1) 3633	Active on snowfields, Logan Pass	6800
7-VII-62 (1) 6610	Garden Wall trail, near Haystack Butte	6700
8-VII-64 (1) 6940	By snowbank, by goat trail on east end of Grinnell Point	6050
10-VII-62 (1) 6627	Active on summit snowbank of Mt. Gould	9541
15-VII-53 (1)	Shore of Iceberg Lk. (Coll. H.W. Levi)	6050
17-VII-51 (1) 3679	By small lake at Shangri-La, in northeast shoulder basin of Mt. Wilbur	6650
6-VIII-66 (1) 8050	By stream in big basin east of Swiftcurrent Pass, under rocks	6900
<u>Amara impuncticollis</u> Say		
11-VII-63 (3) 6778	Active on snow of Salamander Glacier, high above Grinnell Glacier	7100
30-VII-51 (1) 3712	Mud shore of pond east of Chief Mtn	5550
<u>Amara latior</u> Kirby		
11-VII-63 (1) 6778	Active on snow of Salamander Glacier	7100
<u>Amara littoralis</u> Mannerheim		
21-VII-50 (1) 3186	Active on snowfields of Logan Pass	6700
6-VIII-66 (1) 8050	Under rocks in meadow, Swiftcurrent Pass	7100
<u>Amara pallipes</u> Kirby		
26-VI-55 (1) 5672	Under rocks on bare ridge surrounded by snowfields on Logan Pass	6700
<u>Amara pennsylvanica</u> Hayward		
5-VIII-63 (1) 6805	By Swiftcurrent Cr., near Ranger Station	4870
<u>Amara pseudobrunnea</u> Lindroth		
15-VII-63 (1) 6786	Under rock below east edge of Gem Glacier	8100
<u>Amara scitula</u> Zimmermann		
19-VII-63 (1) 6790	Under log, outlet of Falling Leaf Lake (northeast cirque of Allen Mtn.)	6700
<u>Amara sinuosa</u> Casey		
13-VII-55 (1) 5668	Under log beneath snowbank, Sperry Chalets	6800
21-VII-51 (1) 3690	Active on snowfields of Logan Pass	6700
<u>Harpalus amputatus</u> Say		
27-VII-64 (1)	On snow of Grinnell Glacier	6300
<u>Harpalus animosus</u> Casey		
28-VI-56 (1) 5806	In trail, near Ptarmigan Falls	5900
11-VII-56 (1) 5832	Ibid	5900
16-VII-54 (1) 5515	Ibid	5900
19-VII-54 (1) 5523	Crawling on moss, at Hidden Lake Pass	7100
<u>Harpalus egregius</u> Casey		
29-VII-51 (1) 3707	Active on snowfields near Boulder Pass	7900
<u>Harpalus fraternus</u> Leconte		
23-VII-65 (1) 7022	St. Mary Entrance, at lights	4500
<u>Harpalus funerarius</u> Casey		
18-VII-55 (1) 5695	Active on snowfields of Logan Pass	6900

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Harpalus pleuriticus</u> Kirby		
14-VII-63 (1) 6778	Alive but inactive, Salamander Glacier	7100
<u>Harpalus seclusus</u> Casey		
26-VI-55 (1) 5672	Rocky ridge surrounded by snow, Logan Pass	6700
28-VI-56 (1) 5806	Iceberg Lk. trail, near Ptarmigan Falls	5900
28-VI-62 (1) 6601	By lake at Shangri-La, northeast of Mt. Wilbur in hanging basin	6700
29-VI-60 (2) 6146	Iceberg Lake trail, below Ptarmigan Falls	5300
2-VII-56 (1) 5821	Active on snowfields of Logan Pass	6900
7-VII-62 (3) 6610	Garden Wall trail near Haystack Butte	6600
11-VII-53 (2) 5330	Under old logs near Iceberg Lake	6050
11-VII-55 (2) 5682	Active on snowfields of Logan Pass	6900
12-VII-51 (1) 3660	In trail near Ptarmigan Falls	5900
12-VII-64 (2) 6947	Goat trail on east cliff of Grinnell Point	6005
13-VII-55 (2) 5688	Under log buried in snow, Sperry Chalets	6600
15-VII-51 (3) 3669	In trail below Morning Eagle Falls	5300
15-VII-53 (2) 5333	Under rocks in Iceberg Lk. meadows	6050
17-VII-51 (1) 3679	By lake at Shangri-La (Mt. Wilbur)	6700
18-VII-51 (1) 3681	On snowbank in Grinnell Glacier trail	5880
22-VII-54 (1) 5524f	East of top of Swiftcurrent Pass	6660
27-VII-54 (1) 5538	In meadows near Piegan Pass	7900
27-VII-55 (2) 5711	Under rocks near Sperry Chalets	6600
27-VII-64 (1) 6966	High on south face of Grinnell Point	7500
28-VII-53 (1) 5378	Vulture Glacier, near top of Vulture Peak	8600
28-VII-65 (1) 7034	At summit of Bearhat Mtn.	7500
30-VII-51 (1) 3712	Dirt lane one mile from Slide Lk.	5550
31-VII-52 (1) 4055	In trail to Grinnell Glacier	5500
4-VIII-64 (2) 6974	Under rocks by stream, Fifty Mtn Camp	7000
7-VIII-55 (1) 5716	Active on snowfields of Logan Pass	6900
8-VIII-53 (1) Levi	Hidden Pass (Coll. H.W. Levi)	7100
9-VIII-54 (1) 5549	Small streambed above tree-line on west face of Rainbow Peak	8000
15-VIII-52 (1) 4068	Under rock at end of Grinnell Glacier trail	6200
16-VIII-54 (3) 5554	Under rocks in meadow at Hidden Pass	7100
17-VIII-66 (1) 8064	Cold damp gravel by snowfield on west side of Mt. Reynolds	7800
<u>Harpalus somnulentus</u> Dejean		
4-VIII-64 (3) 6974	Under rocks in meadow near Fifty Mtn Camp	6600
<u>Discoderus parallelus</u> Haldeman		
28-VII-65 (1) 7030	At Triple Divide Pass	7500
<u>Bradycellus congener</u> Leconte (= <u>Stenocellus alutaceus</u> Casey)		
12-VII-53 (1) 5332	Preying on ladybugs under rocks on ice of Salamander Glacier (above Grinnell)	7100
<u>Stenolophus conjunctus</u> Say		
12-VII-53 (1) 5332	Preying on ladybugs under rocks on ice of Salamander Glacier (above Grinnell)	7100
<u>Chlaenius harpalinus</u> Eschscholtz		
5-IX-51 (1) 3744	Beside Chief Mtn Customs Station (in road)	5100
<u>Dromius piceus</u> Dejean		
20-VII-56 (1) 5860	At end of Grinnell Glacier trail	6200
<u>Metabletus americanus</u> Dejean		
28-VI-52 (1) 3977	Under a rock low on south slope of Altyn Mt.	5200
20-VII-53 (1) 5490	Dense woods near Lk. McDonald Hotel	3155
3-IX-51 (1) 3739	In trail 5 miles west of Red Eagle Lk.	5300
<u>Cymindis cribricollis</u> Dejean		
8-VII-61 (2) 6441	Both on 8"-long stick floating in eddy in Wilbur Creek near Swiftcurrent Camp	4900
3-VIII-68 (1) 8240	Under rock in meadow at eastern side of Divide Mtn, at end of lane	6600
23-VIII-68 (1) 8295	Low on Mt. Altyn, by tiny stream	5550
25-VIII-68 (1) 8300	Under log, Swiftcurrent Camp	4880

<u>NAMES AND DATES</u>	<u>LOCALITIES AND HABITATS</u>	<u>ELEVATIONS</u>
<u>Cymindis obliqua</u> Casey 18-VII-51 (1) 3681	On snowbank in Grinnell Glacier trail	5800
<u>Cymindis planipennis</u> Leconte 16-VII-68 (1) 8219	Granite Park Chalets, under rock	6600
<u>Cymindis unicolor</u> Kirby 26-VI-55 (1) 5672	On bare ridge surrounded by snowfields, on Logan Pass	6700
<u>TOTAL NUMBER OF SPECIES</u> - 109		
<u>TOTAL NUMBER OF GENERA</u> - 28		

NOTE: The numbers in parentheses following the dates indicate the numbers of specimens taken. The four-digit numbers preceding the locality citations are my field-note reference numbers, which usually contain more information than could be included in this annotated list.

#### REFERENCES

- EDWARDS, J. G. 1957. Some general observations on the ecology of Glacier National Park, Montana, with special reference to certain entomological aspects. *Wasmann J. Biol.* 15:123-151; 5 photos.
- EDWARDS, J. G. 1966. *A climber's Guide to Glacier National Park*. Sierra Club Publication 1960 (revised 1966), 5 × 7, cloth, 155 pages.

#### LITERATURE NOTICES

**A revision of the genus *Psephenus* (Waterpenny beetles) of the United States and Canada** (Coleoptera, Dryopoidea, Psephenidae), by H. P. Brown and C. M. Murvosh. 1974. *Trans. Amer. Ent. Soc.* 100:289-340.

**Type-material in the insect collection of the Department of Entomology, Texas A & M University**, by H. R. Burke and R. R. Murray. 1974. *Texas Agr. Exp. Sta. MP-1161*:1-14. (The collection contains 71 holotypes, 52 allotypes, 2,271 paratypes, 17 neoparatypes, and 5 syntypes; 142 species of Coleoptera are represented by types [sens. lat.]).